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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,086	04/23/2004	Mikio Ishihara	461-175	9229

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ARLINGTON, VA 22203

EXAMINER
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KEMMERLE III, RUSSELL J

ART UNIT	PAPER NUMBER
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1731

MAIL DATE	DELIVERY MODE
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07/24/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/830,086

**Applicant(s)**

ISHIHARA, MIKIO

**Examiner**

Russell J. Kemmerle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what is meant by the limitation that the "protrusions extend to a plane of a top planer surface of said tapered jig" (the same language is found in both claims), since a planer surface has not been defined and it is not clear from where the protrusions extend.

### ***Response to Amendment***

The amendment filed 05 June 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the description that the "protrusions extend to a plane of a top planer surface of said tapered jig" does not appear to be supported by the disclosure as originally filed.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 10-12 and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seiji (Japanese Patent Publication Number 10-057730) (all citations to the Seiji reference indicate where that information can be found in the English translation of the document accompanying this office action).

Seiji discloses a ceramic honeycomb filter, and a method of its production. Specifically, Seiji discloses a method of forming a honeycomb filter by extruding a ceramic material through a die in order to create a honeycomb shape (page 17, paragraph 33). As the ceramic material is extruded it is introduced into a tapered jig that causes the deflection of the walls of the cells that make up honeycomb structure (page 18 paragraph 35). This step does not create a sealed object, but instead leaves small holes in the altered cross section of the ceramic honeycomb. The tapered jig is located on a table, which moves at a speed synchronized with the extrusion speed of the ceramic honeycomb structure (page 18 paragraph 35). After the honeycomb has been extruded to the desired length, it is cut (pages 18-19 paragraph 36). The small holes formed in the cross section above during the tapering step are then sealed with a sealing agent, and the honeycomb filter is then dried and fired (page 19 paragraph 38).

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Seiji further discloses holes that run through the tapered jig from the side opposite where the honeycomb structure is contacted through to the space where the small openings are formed (page 20 paragraph 41, reference number 11 in Figs. 3-6).

Seiji does not disclose that the honeycomb filter is extruded into the tapered jig to form the desired shape, dried and fired, then fitted with plugs to seal the openings of the cells. However, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant that if the honeycomb structure were fitted with plugs first then fired or fired first then fitted with plugs would produce essentially the same final product. Thus the idea of drying and firing the honeycomb structure taught by Seiji, then sealing the small holes as discussed above would have been obvious to one of ordinary skill in the art.

Referring to claims 3 and 18, Seiji further discloses that the tapered jig as discussed above has protrusions (reference number 10 in Figs 3-6) that extend from the base of the jig in the direction toward the molding die, and that these protrusions, at least in part, define the through holes of the tapered jig (reference number 11 in Figs 3-6).

Referring to claims 2 and 20, Seiji discloses that the movement of the tapered jig is synchronized with the extrusion rate of the ceramic material (page 18 paragraph 35).

Referring to claims 5, 6 and 21, Seiji discloses that the material of the honeycomb filter is a ceramic, specifically such as alumina (pages 13- 14 paragraph 24).

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Referring to claims 10 and 11, Seiji further discloses the ceramic being extruded include an organic binder, specifically methyl cellulose (pages 17-18 paragraph 34).

Referring to claim 12, it would have been obvious to one of ordinary skill in the art that the steps recited above could be repeated to create a plurality of honeycomb filters since no damage is done to the parts that would prevent them from being reused, and it would be wasteful to use them only once to create only one honeycomb structure.

Referring to claims 15 and 16, Seiji discloses that this honeycomb structure be used to remove particles in exhaust gas from an internal combustion engine, specifically a diesel engine (pages 5-6 paragraph 2). This would require that the filter be placed in the path of the exhaust gas in order to remove those particles.

Referring to claims 17 and 19, the protrusions taught by Seiji extend to a top planer surface of the tapered jig since, as can be seen from Figs 3,4 and 6, the top of the jig is where the protrusions end.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seiji in view of Ishihara (US Patent 6,863,705). Seiji is relied upon as discussed above, but does not disclose that the ceramic material include a pore-providing material, specifically a carbon, a resin or a mix, more specifically where the resin is a thermoplastic resin selected from the group consisting of acrylic resin, poly(methyl stearate) resin and vinyl chloride resin.

Ishihara discloses a ceramic honeycomb filter made out of a ceramic material, where the ceramic further includes a pore-providing material, specifically a thermoplastic resin. Specific examples given by Ishihara of suitable thermoplastic

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resins include acrylate resin, stearic acid methyl, vinyl chloride resin and others (Col 5 lines 40-41). It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have modified the honeycomb structure taught by Seiji by using a ceramic material further comprising a thermoplastic material of the kind taught by Ishihara since Ishihara discloses that such an addition is helpful in forming a ceramic honeycomb structure.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seiji in view of Itoh (US Patent 6,972,045). Seiji is relied upon as discussed above, but does not disclose that the honeycomb structure has cells with a cross section that is substantially a triangle.

Itoh discloses a ceramic honeycomb filter, including one where the cells have a substantially triangular cross section (Col 7 lines 8-52, Fig 8). It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have modified the honeycomb structure taught by Seiji by creating the cells with a substantially triangular cross section as taught by Itoh since Itoh teaches that such a cross section makes an effective ceramic honeycomb structure, and teaches how to create such a structure including a tapered jig for increasing the cross sectional area of some of the cells.

### ***Response to Arguments***

Applicant's arguments filed 05 June 2007 have been fully considered but they are not persuasive. Applicant argues that Seiji does not teach or suggest through-holes or protrusions. This argument is not persuasive, since as discussed above, Siji does

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disclose through-holes in the tapered jig (shown as reference number 11 in the drawings) as well as protrusions (shown as reference number 10 in the drawings).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell J. Kemmerle whose telephone number is 571-272-6509. The examiner can normally be reached on Monday through Friday, 8:30-4:00 EST.

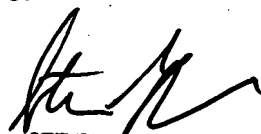
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RJK/



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